

Cp. 1652



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Attorney Docket No.:

RU-0064

Inventors:

LAZARUS ET AL.

Serial No.:

09/332,886

Filing Date:

JUNE 15, 1999

Examiner:

NOT YET ASSIGNED

Group Art Unit:

NOT YET ASSIGNED

Title:

IMPROVED ENZYMES FOR THE PRODUCTION OF  
2-KETO-L-GULONIC ACID

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I, **Jane Massey Licata**, Registration No. 32,257, certify that this correspondence is being depositing with the U.S. Postal Service as First Class mail in an envelope addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

On this date: July 7, 2000

Jane Massey Licata  
Jane Massey Licata, Registration No. 32,257

Assistant Commissioner for Patents  
Washington, DC 20231

Sir:

INFORMATION DISCLOSURE STATEMENT

Pursuant to 37 C.F.R. §1.56 and in accordance with 37 C.F.R. §§1.97-1.98, information relating to the above-identified application is hereby disclosed. Inclusion of information in this statement is not to be construed as an admission that this information is material as that term is defined in 37 C.F.R. §1.56(b).

(XX) In accordance with §1.97(b), since this Information Disclosure Statement is being filed either within three months of the filing date of the above-identified application, within three months of the date of entry into the national stage of the above identified application as

set forth in §1.491, or before the mailing date of a first Office Action on the merits of the above-identified application, no additional fee is required.

- ( ) In accordance with §1.97(c), this Information Disclosure Statement is being filed after the period set forth in §1.97(b) above but before the mailing date of either a Final Action under §1.113 or a Notice of Allowance under §1.311, therefore:

- ( ) Certification in Accordance with §1.97(e) is set forth below; or

- ( ) The fee of \$240.00 as set forth in §1.17(p) is attached.

- ( ) In accordance with §1.97(d), this Information Disclosure Statement is being filed after the mailing date of either a Final Action under §1.113 or a Notice of Allowance under §1.311 but before the payment of the Issue Fee, therefore included are: Certification in Accordance with §1.97(e); Petition Requesting Consideration of the Information Disclosure Statement; and the fee of \$130.00 as set forth in §1.17(i)(1).

- ( ) Copies of each of the references listed on the attached Form PTO-1449 (modified) are enclosed herewith.

- (~~XX~~) In accordance with §1.98(d), copies of some or all of the references listed on the attached Form PTO-1449 (modified) are not enclosed herewith because they were previously submitted to the U.S. Patent and Trademark Office in prior

application Serial No. 08/749,337, filed November 14, 1996,  
application Serial No. 08/249,377, filed May 24, 1994 and  
application Serial No. 07/941,414, filed September 8, 1992  
for which a claim for priority under 35 U.S.C. §120 has been  
made in the instant application.



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Please charge any deficiency or credit any overpayment to Deposit Account No. 12-1086. This form is submitted in duplicate.

( ) The relevance of the listed references in a foreign language is as stated in the specification at pages @@.

(XX) All listed references are in the English language.

Respectfully submitted,

*Jane Massey Licata*

Jane Massey Licata  
Registration No. 32,257

Date: July 7, 2000

Law Offices of  
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Marlton, New Jersey 08053

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Sheet 01 of 03

<b>Form PTO-1449 Modified</b>  List of Patents and Publications Cited by Applicant (Use several sheets if necessary)  U.S. Department of Commerce Patent and Trademark Office	Docket No. <b>RU-0064</b>	Serial No. <b>09/332,886</b>
	Applicant <b>LAZARUS ET AL.</b>	
	Filing Date <b>JUNE 15, 1999</b>	Group <b>NOT YET ASSIGNED</b>

**U. S. PATENT DOCUMENTS**

Examiner		Document	Date	Name	Class	Subclass
	AA	5,032,514	7-16-91	Anderson et al.	435	138
	AB	5,008,192	4-16-91	Anderson et al.	435	138
	AC	4,757,012	7-12-88	Estell et al.	435	172.3
	AD	4,945,052	7-31-90	Hardy et al.	435	172.3
	AE	5,004,690	4-2-91	Light et al.	435	138
	AF	4,758,514	7-19-88	Light et al.	435	91
	AG	4,543,331	9-24-85	Sonoyama et al.	435	138
	AH	3,998,697	12-21-76	Sonoyama et al.	195	47
	AI	3,959,076	5-25-76	Sonoyama et al.	195	30
	AJ	RE 30,872	2-23-82	Sonoyama et al.	435	138

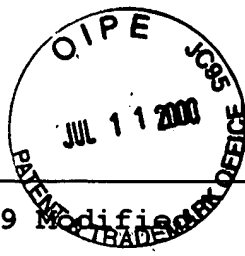
**FOREIGN PATENT DOCUMENTS**

Examiner Initial		Document No.	Date	Country	Translation YES NO	
	AK	046,284	14-8-81	EPO	x	
	AL	088,409	4-3-83	EPO	x	
	AM	142,169	14-11-84	EPO	X	

<b>EXAMINER</b>	<b>DATE CONSIDERED</b>
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Form PTO-1049 Modified List of Patents and Publications Cited by Applicant (Use several sheets if necessary) U.S. Department of Commerce		Docket No. <b>RU-0064</b>	Serial No. <b>98/332,886</b>
		Applicant <b>LAZARUS ET AL.</b>	
		Filing Date <b>JUNE 15, 1999</b>	Group <b>NOT YET ASSIGNED</b>
<b>OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)</b>			
	AA	Anderson S. et al., "Production of 2-Keto-L-Gulonate, an Intermediate in L-Ascorbate Synthesis, by a Genetically Modified <u>Erwinia herbicola</u> ", <i>Science</i> 130:144-149 (1985)	
	AB	Grindley, J.F., et al., "Conversion of Glucose to 2-Keto-L-Gulonate, an Intermediate in L-Ascorbate Synthesis by a Recombinant Strain of <u>Erwinia herbicola</u> ", <i>Appl. Environ. Microbiol.</i> 54:1170-1775 (1988)	
	AC	Kellis, J.T., et al., "Contribution of Hydrophobic Interactions to Protein Stability", <i>Nature</i> 333:784-786 (1988)	
	AD	Imanaka T., et al., "A New Way of Enhancing the Thermostability of Proteases", <i>Nature</i> 324:695-697 (1986)	
	AE	Matthews, B.W., et al., "Enhanced Protein Thermostability from Site-Directed Mutations that Decreases the Entropy of Unfolding", <i>Proc. Natl. Acad. Sci. (USA)</i> 84:6663-6667 (1987)	
	AF	Matsumura, M., et al., "Substantial Increase of Protein Stability by Multiple Disulphide Bonds", <i>Nature</i> 342:291-293 (1989)	
	AG	Miller et al., "Purification and Characterization of 2,5-Diketo-D-Gulonate Reductase from <i>Corynebacterium</i> Sp.", <i>J. Biol. Chem.</i> 262:9016-9020 (1987)	
	AH	Nicholson, et al., "Enhanced Protein Thermostability from Designed Mutations that Interact with $\alpha$ -Helices", <i>Science</i> 240:1648-1652 (1988)	
	AI	Rastetter, et al., "Enzyme Engineering: Applications and Promise", <i>Trends Biotechnol.</i> 1:80-84 (1983)	
<b>EXAMINER</b>		<b>DATE CONSIDERED</b>	



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Applicant

LAZARUS ET AL.

U.S. Department of Commerce

Filing Date

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Group

NOT YET ASSIGNED

**OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)**

	AJ	Richardson et al., "Amino Acid Preferences for Specific Locations at the Ends of $\alpha$ -Helices", <i>Science</i> 240:11648-1652 (19880
	AK	Sonoyama et al., "Purification and properties of Two 2,5 Diketo-D-Gluconate Reductases from a Mutant Strain Derived from <i>Corynebacterium</i> sp.", <i>J. Ferment. Technol.</i> 65:311-317 (1987)
	AL	Sonoyama et al., "Distribution of Microorganisms Capable of Reducing 2,5 Diketo-D-Gluconate to 2-Keto-L-Gulonate", <i>Agric. Biol. Chem.</i> 51:2003-2004 (1987)
	AM	Sonoyama et al., "Production of 2-Keto-L-Gulonic Acid from D-Glucose by Two Stage Fermentation", <i>Appl. Environ. Microbiol.</i> 43:1064-1069 (1982)
	AN	Wells et al., "Recruitment of Substrate-Specificity Properties from One Enzyme into a Related One by Protein Engineering", <i>Proc. Nat'l. Acad. Sci. USA</i> 84:5167-5161 (1987)
	AO	Wilkinson et al., "A Large Increase in Enzyme-Substrate Affinity by Protein Engineering", <i>Nature</i> 307:187-188 (1984)
EXAMINER		DATE CONSIDERED